



CIRCULAR SEWING ATTACHMENT OF A SEWING MACHINE

FIELD OF THE INVENTION

[0001] The present invention is related to the attachment for circular sewing of a sewing machine and characterized by being convenient and enabling it to cut down the cost while it simplifies the structure of the attachment and enables it to dismount and mount to the sewing machine simply.

BACKGROUND OF THE INVENTION

[0002] The attachments for circular sewing in the sewing machine, for example, they are used to mount the attachments to the front right side of a needle position like the patent literature 1(HEISEI5-60478), the patent literature 2(SYOUWA62-23682) and the patent literature 3(SYOUWA62-23681). And on the patent literature 4(HEISEI 5-48879), patent literature 5(HEISEI 4-375) together with patent literature 6(HEISEI 3-17778), it exists with the one did it as the attachment is mounted to the front left side of the needle position.

[0003] Because circular sewing attachment of the patent literature 1~3 are installed to the right side of the needle position, there is a fault that it is easy to become the prevention of sewing work of the sewing machine on feeding the cloth, and the so on. Though, there is an advantage which doesn't obstruct sewing work with attachments of the patent literature 4, 5 and 6, it requires to prepare a complicated drive control unit to the attachment for circular sewing like patent literature 4 and also a auxiliary table with a ditch should be necessary for like patent literature 5, and a circular table is driven specially by drive mechanism required as patent literature 6. Also, there was the inconvenient point that be able to select the diameter of possible circular sewing only intermittently and be not able to change the diameter of a circular sewing, continuously.

[0004] As mentioned above, the usual circular sewing attachment had a complicated structure and it becomes expensive, and moreover they had a disadvantage that the user-friendliness is bad with points that is various.

DESCRIPTION OF THE INVENTION

SUMMARY OF THE INVENTION

[0005] From over, in order to solve the above-mentioned first problem, the present invention provides a circular sewing attachment for a sewing machine, which is so constructed with simplified structure so that it is able to make cost down, and it is also able to be changed the diameter of circular sewing continuously, beside enables it to dismount or mount the circular sewing attachment to the sewing machine easily, so that it becomes convenient to operate the attachment.

So as to solve the 2nd problem, the present invention provides a circular sewing attachment for a sewing machine, which makes it possible to form the circular sewing over the 2nd circumference with which it comes close to inside or outside of circular sewing of the 1st circumference that is formed to the sewing material.

For the 3rd problem, by using overlock sewing machine, it is possible to perform the circular sewing with wide width of seam as wider as possible every each circumference.

(Such means that solves the problem = Summary of the invention)

[0006] Thereupon the present invention, so as to solve the above mentioned problems, provides the fixed frame and the movable frame, the fixed frame having two sections, a mount section and a support section, wherein the mount section is mounted or dismounted free through a set screw to the front frame of a sewing machine and the support section is prepared at the part extended in the direction of a needle plate side from this side of the front of sewing machine along the edge of a bed of said sewing machine which is prepared for an unit together with said mount section on said fixed frame; besides it is overlapped to the above mentioned support section, a scale section movably supported on said movable frame and that make the slide to the direction of right and left, extended part of said movable frame from one end of said scale section is bent around the part of said needle plate and is overlapped to the surface of the bed of said sewing machine, furthermore said movable frame extends to the top section that is located at the left side of said needle plate and a needle position with which they are prepared for an unit on said movable frame; said movable frame having said top

section on which the pin that the tip turned upward and is fixed, and provides an adjustment screw that is inserted to the slot provided along the longitudinal direction of above mentioned scale section and fixes movable frame overlapped to said support section of said fixed frame.

In such condition of mounting the attachment to said sewing machine, said sewing machine is driven after pricking the sewing material that becomes as a sewing product, , with said pin that is fixed on said top section of said movable frame and by operating usual sewing , thus this attachment is to make possible forming a circular sewing in said sewing machine to said sewing material as make above mentioned pin the center of circle and as radius with the length until the needle position.

[0007] And the invention of the claim 2, in the attachment for said circular sewing comprises the structure of above mentioned claim 1, by operating the adjustment screw, the fixation of said scale section being fixed to said support section is canceled, and shift said scale section to the position of the request along said slot prepared on the scale section of said movable frame, change the radius, from said pin to said needle position, and is able to fix in the position of the request. Furthermore, in the invention of Claim 3, by using overlock sewing machine for the circular sewing, it is possible to make the form the circular sewing with wide width of seam as wider as possible thereby it is obtainable the sewing product that is rich to the characteristics of decoration ; when overlock sewing machine with cutting device is used, while sewing of wipstitch, it is also possible at the same time, to cut off the excessive sewing material.

EFFECT OF THE INVENTION

[0008] The attachment for circular sewing concerning the present invention, is comprises only two frames as main frame which are said fixed frame and said movable frame; said fixed frame provides said mount section and said support section that are prepared for an unit and said movable frame provides said scale section prepared with a slot and said top section prepared with said pin that becomes the center of circle, it is just required adding only two screws, a set screw and an adjustment screw to the above mentioned two main frames frames and all the structure of this attachment is

completed; as mentioned above, the number of necessary parts for this attachment is quite few and therefore it is very easy to make a cost down for said attachment as the structure is extremely simplified and also is very easy to operate said sewing machine because the location of mounted attachment is on the left side of said needle position and it is convenient that diameter of circular sewing can be changed continuously.

[0009] Furthermore, said attachment for the circular sewing concerning the present invention, by the usual operation with the presser foot and the sewing needle and adding work of feeding sewing material by a feed dog, it is resulted that said sewing material turns automatically without any special operation and the circular sewing is formed with specified radius that wrinkle was determined nonexistent on the sewing material.

PREFERRED EMBODIMENT OF THE INVE

[0010] The set screw to the sewing machine and said mount section is mounted or dismounted free through above mentioned set screw to the front frame of the sewing machine and said support section is prepared at the part extended in the direction of a needle plate side from this side of the front of a sewing machine along the edge of a bed of said sewing machine which is prepared for an unit together with said mount section on said fixed frame that made of plane metal plate; besides it is overlapped to above mentioned support section, said scale section movably supported on said movable frame and that enable the slide to the direction of right and left, extended part of said movable frame from one end of said scale section is bent around the part of said needle plate and is overlapped to the surface of the bed of said sewing machine, furthermore said movable frame extends to the top section that is located at the left side of said needle plate and a needle position with which they are prepared for an unit on said movable frame; said movable frame having said top section on which the pin that the tip turned upward and is fixed, and provides said adjustment screw that is inserted to said slot provided along a longitudinal direction of above mentioned scale section and fixes movable frame overlapped to said support section of said fixed frame;

In such condition of mounting the attachment to said sewing machine, said sewing

machine is driven after pricking the sewing material that becomes as a sewing product, with said pin that is fixed on said top section of said movable frame and by operating usual sewing, thus said attachment has a structure that enable the sewing of the circular sewing as make above mentioned pin the center of circle and as radius with the length until the needle position.

EMBODIMENT

[0011] FIG.1 is a plane view showing the state of mount of the embodiment.

[0012] FIG.2 is a left side view showing the state of mount of the embodiment.

[0013] FIG.3 is a dissolution strabismus figure of this attachment.

[0014] In the figure showing the embodiment, 1 is the fixed frame fixed to a sewing machine, 2 is the movable frame that overlapped to the fixed frame 1 and is able to slide to the left side or the right side, 3 is the set screw that fixed fixed frame 1 to a sewing machine, 4 is the adjustment screw that fixed the movable frame 2 to the fixed frame

[0015] A mount section 7 is fixed to a sewing machine by use of a set screw 3 and a support section 10 is prepared at the part extended in the direction of a needle plate side from this side of the front of the sewing machine along the front edge of a bed 8 of the sewing machine and the both sections are prepared on the fixed frame1, further besides it is overlapped to the support section, a scale section11 is movably supported and that enable the slide in the direction of right and left, the extended part from one end of the scale section is bent around the part of a needle plate of the sewing machine and after it is overlapped to the surface of said sewing machine, it is further extended to the top section 13 at where it is located left side of the needle plate 9 and a needle position12, and that is prepared for a unit together with the scale section, the top section 13 of the movable frame 2, provides the pin 16 that is fixed on it and the tip turned upward, the adjustment screw 4 is prepared, that is inserted to the slot 14 provided along the longitudinal direction of the scale section and fixes the movable frame at the desired position, and that is overlapped to the support section of the fixed frame1; In the condition of mounting the attachment to the sewing machine, the sewing machine is driven after pricking the sewing material with the pin; by operating usual

sewing, the attachment is to make possible forming the circular sewing as making above mentioned pin 16 the center of circle and as the radius with the length until said needle position 12.

[0016] As shown in Figure 2, fixed frame 1 incline along the frame 5 of a sewing machine, provide the mount section 7 that prepared a insert hole 6 for the set screw 3 and the said support section 10 extended from this side of the front side of a sewing machine, in the direction of the needle plate side 9 along the front edge of the bed 8 of a sewing machine which they are prepared for an unit;

The said movable frame 2 provides the said scale section 11 at the one end that is overlapped to the said support section 10 and other part extended from the one of edge of the said scale section 11 and turns around a part of the needle plate 9

to the right angle and is overlapped to the surface of the bed 8 of a sewing machine; the top section 13 is located at the end part of the extended movable frame and on the left side of the needle plate 9 and the needle position 12.

[0017] Said scale section 11 indicates the scale 11' along the edge, and provides a slot 14 that locates in the center along the longitudinal direction and the adjustment screw with head 4 that inserts to said slot 14 and to the screw hole 15, and by the tightening said screw, said scale section 11 together with said movable frame 2 are bonded to said fixed frame 1 to be an unit;

The top portion 13 has the pin 16 that the tip turns upward and fixed on and the length from said pin 16 to the said needle position 12 becomes as the radius of the circle for the circular sewing and namely, in this embodiment, at the pointing location with the edge 19 of the left end of said support section 10 on the scale 11' of said scale section 11 shows the length as radius that is shown in Figure 1, is indicating that is the radius of 45mm of the circle for circular sewing.

[0018] Furthermore, 17 in the figure 1, is extended from the edge on the side of the front of the corner part of the movable frame 2 and hang on the edge of the bed 8 of a sewing machine in the mounting condition of the attachment and as the working of the feeding the sewing material, the installation location of movable frame 2 deviates from the original location, occasionally, so as to prevent this kind of deviation, 17 is able to apply to the purpose; 18 in the figure 1 shows a presser foot for the sewing

material located on the needle plate 9.

[0019] Next an explanation will be given of an example of use of embodiment. The attachment mounts to a sewing machine and desired sewing material for example, a square cloth etc., pricks said pin 16 of said movable frame into the center of such square cloth and then said sewing machine is driven, The starting end of the circular sewing is put in needle position 12 that has a radius R from said pin 16 and by the operation of a feed dog, sewing needle and a presser foot for the sewing material 18 though their illustration are omitted, said circular sewing with said pin 16 as the center of circle starts; when said circular sewing begins, the hem part of the sewing material is fed and makes anti-clockwise circular motion automatically by driving of a feed dog at the hem part and by the seam of said circular sewing returns at the point of starting end, one round of said circular sewing is completed. Their operation's drawings are omitted..

[0020] When the radius of circular sewing is changed, loosen adjustment screw 4, while seeing scale 11' of scale section 11 of said movable frame 2 and shifts the said movable frame 2 to right side or left side, and by tightening adjustment screw 4 after transfer to the position of the request and radius of said circular sewing changes to the length from said pin 16 to said needle position 12 in the time; furthermore, when overlock sewing machine is used for circular sewing it is possible to obtain the sewing material with rich nature of decoration after the width of the seam applied as much as possible wider.

In this case, by the use of overlock sewing machine with cutting device, it is also possible to have the attractive work of cutting off excessive relating material, while operating simultaneously, said circular sewing of wipstitch at the Hem part of outer circumference.

[0021] Also, at the finished position of 1st circumference circular sewing, it is possible to make the multiple circular sewing when radius R extend or shorten to the length corresponding to width of the seam. Even in the case of making such sewing product, the use of the overlock sewing machine is advantageous.

The sewing product applied with the circular sewing are used to the pot stand and the coaster etc., in addition to the applique.

Industrial applicability

[0022] In the attachment concerning with the present invention, the form of installation metal fittings or the form of movable frame are not limited to the mode of the embodiment and be obvious the change that designs it properly along the gist of this invention, to go out and cut.

Brief explanation of the drawings

[0023] Figure 1. is a plane view that shows the installation condition of the embodiment.

[0024] Figure 2. is a left side view that shows the installation condition of the embodiment

[0025] Figure 3. is a dissolution strabismus figure of this attachment.

Explanation of the sign

- [0026]**
1. Fixed frame
 2. Movable frame
 3. Set screw
 4. Adjustment screw
 5. Frame of sewing machine
 6. Insertion hole of the screw
 7. Mount section
 8. Bed of sewing machine
 9. Needle plate
 10. Support section
 11. Scale section
 - 11' Scale
 12. Needle position
 13. Top section
 14. Slot
 15. Screw hole

16. Needle
17. Stopper for the attachment
18. Presser foot
19. Pointing edge